

April 28, 2005

VIA ELECTRONIC FILING

Marlene H. Dortch, Secretary
Federal Communications Commission
445 12th Street, S.W.
Washington, DC 20554

Re: *Ex Parte* Submission of Shure Incorporated
ET Docket No. 04-186; Unlicensed Operation in the TV Broadcast Bands

Dear Ms. Dortch:

Shure Incorporated (“Shure”), by undersigned counsel, hereby submits this filing in response to Intel Corporation’s (“Intel”) March 29, 2005 *ex parte* presentation¹ to correct inaccuracies and misimpressions in Intel’s filing summarizing the status of this proceeding.

Intel’s filing erroneously suggests that this proceeding is uncontested and without significant unresolved technical issues. Contrary to Intel’s assertions, however, unlicensed devices operating under the rules as proposed in the NPRM² would cause significant harmful interference to a variety of important licensed services relied upon by the American public. The record is replete with discussion and technical analysis by Shure and others of the harmful interference that will occur to wireless microphones, rural television reception, DTV receivers, and other services relied upon by millions of Americans if unlicensed devices are introduced to the TV broadcast bands as proposed. To date, no proven solutions have been developed to remedy this harmful interference.

Shure has supported an open-minded and critical analysis of the Commission’s proposals in the NPRM. However, Intel’s zeal to gain free access to the “beachfront” spectrum in the TV broadcast bands is both transparent and unproductive, and it does not serve the Commission’s overall public interest goals. In pushing the FCC to “move forward without delay,”³ Intel

¹ *Ex Parte* Presentation of Intel Corporation filed in ET Docket No. 04-186 on March 29, 2005 (“*Intel Ex Parte*”). A complete copy of Intel’s *ex parte* presentation was not received by the FCC until March 31, 2005.

² *Unlicensed Operation in the TV Broadcast Bands*, ET Dockets 04-186, 02-380, Notice of Proposed Rulemaking, released May 25, 2004 (“NPRM”).

³ *Intel Ex Parte*, at p. 5.

ignores, and urges the Commission to ignore, the extensive record demonstrating both the substantial risk of widespread interference and the absence of proven mitigation solutions. It is premature for the Commission to move forward to adopt the rules it has proposed in the NPRM. More study is needed to resolve the complex interference issues presented by the NPRM to ensure that existing spectrum users and the American public are not harmed.

I. THERE ARE NO PROVEN REAL-WORLD INTERFERENCE SOLUTIONS.

The filings and technical studies on the record demonstrate that numerous licensed services will experience harmful interference if unlicensed devices are introduced in the TV broadcast bands as proposed by the NPRM. Shure's technical study demonstrates that unlicensed devices will cause harmful interference to wireless microphones.⁴ Motorola's technical study confirms that television receivers within the Grade B contour are not adequately protected.⁵ MSTV's technical analysis shows that NSTC and DTV receivers will experience desensitizing interference, which may also adversely affect cable and satellite television reception.⁶ The National Translator Association's technical analysis demonstrates that the NPRM fails to "protect television reception out to the limits of practical and useful reception,"⁷ which would particularly and disproportionately harm rural viewers.

Despite ongoing industry discussions, there is no credible technical analysis on the record (or elsewhere) which refutes this evidence. Intel fails to address these studies, let alone convincingly rebut them. Intel's "technical analysis" is woefully inadequate and misguided, and does not provide the Commission a reasonable basis upon which to conclude to move forward with the proposals in the NPRM.⁸

⁴ See, e.g., Notice of *Ex Parte* Filing of Shure Incorporated filed in ET Docket No. 04-186 on July 21, 2004 and Notice of *Ex Parte* Meeting of Shure Incorporated filed in ET Docket No. 04-186 on August 5, 2004.

⁵ See Comments of Motorola Corporation filed in ET Docket No. 04-186 on Nov. 30, 2004 at p. 12 ("Motorola Comments").

⁶ See Joint Comments of the Association for Maximum Service Television, Inc. and the National Association of Broadcasters filed in ET Docket 04-186 on Nov. 30, 2004 at pp. 8-9 (citations omitted).

⁷ See Comments of the National Translator Association filed in ET Docket No. 04-186 on Nov. 30, 2004 at p. 3 ("NTA Comments") ("the principal source of over-the-air television in rural portions of the United States is by means of translator service").

⁸ For example, Intel grossly underestimates direct pickup interference and protections needed for out-of-band emissions. Laboratory tests have shown that direct pickup interference will produce harmful interference to co-channel cable television reception from simulated personal/portable devices operating 10 meters away from a cable television at the NPRM's power levels. Intel attempts to discount this risk by pointing to a mobile phone as an example of a noninterfering device, however, this example is unpersuasive because mobile phones do not operate co-channel to cable television frequencies. On out-of-band emissions, Intel uses unrealistic assumptions to conclude that these levels should be raised 20 dB from that proposed in the NPRM. Motorola, however, proves via statistical Monte Carlo simulation that these limits must be reduced below NPRM levels to protect television reception in suburban and urban areas. Perhaps most disturbing of all is Intel's proposal – clearly contrary to the NPRM – to allow unlicensed devices to communicate with each other on *occupied* television channels without regard to the

For the past several months, Shure and other affected parties participating in IEEE and other working groups have constructively examined the scope of harmful interference from unlicensed devices and thoughtfully considered possible mitigation techniques. Important work is continuing but no meaningful consensus has yet been reached to resolve the numerous and varied destructive interference problems presented by the NPRM.

Although there is no clear resolution to the interference issues, what is clear is that the record shows it is premature for the FCC to move forward with the NPRM proposals at this time. It would be unreasonable for the Commission to permit unlicensed devices in the TV broadcast bands unless the Commission were assured that any harmful interference would be effectively mitigated. There are no such assurances. Real-world solutions have not been developed – let alone tested and proven – to remedy the harmful interference that unlicensed devices would cause. Intel would have the Commission use Intel’s flawed and agenda-driven analysis to run roughshod over the grave and substantiated concerns of existing spectrum users in TV broadcast bands. The Commission cannot simply close its eyes – as Intel does – to the important public interests at stake and proceed with the NPRM absent proven solutions to mitigate potential interference.

II. ABSENT PROVEN SOLUTIONS, NUMEROUS IMPORTANT USERS OF THIS BAND WILL BE HARMED IF THE FCC MISSTEPS IN THIS PROCEEDING.

The NPRM’s stated objectives are to allow unlicensed devices to operate in the TV broadcast bands as long as no harmful interference occurs to licensed services.⁹ However, numerous and varied existing licensed users of the TV broadcast bands – wireless microphone users, broadcasters, translator operators, 700 MHz interests, and public safety – are on the record expressing grave concerns about the harm unlicensed devices will cause to their operations.

Shure and other wireless microphone interests have analyzed and demonstrated that wireless microphones will experience harmful interference from unlicensed devices if the NPRM proceeds as proposed. In a recent filing, the News, Sports and Entertainment Coalition stated that millions of Americans have come to rely on the high quality production in live news, sporting and entertainment events made possible by wireless microphones and described how the viewing public would be harmed if wireless microphone operations were impaired.¹⁰

harm such transmissions could cause licensed services. *See* Comments of Intel Corporation filed in ET Docket No. 04-186 on Nov. 30, 2004 at App. B, p. 3.

⁹ *See, e.g.*, NPRM, ¶ 2.

¹⁰ *See* Letter to Chairman Powell filed in ET Docket No. 04-186 on March 11, 2005 at pp. 2-3. The News, Sports and Entertainment Coalition includes NBC Sports, the NFL, Fox, C-Span, CBS News, Shure, among others.

In an area with even more far-reaching implications, broadcasters fear that allowing unlicensed devices as proposed by the NPRM would wreak havoc on the DTV transition.¹¹ They uniformly urge the Commission, to the extent it decides to proceed with this item at all, to wait until after the DTV transition to take any action. “The next 2-3 years are critical in ensuring an efficient and successful DTV transition.”¹² Fundamental spectrum assignment issues and DTV operational issues are currently unsettled and in a state of flux. Moreover, the “cliff effect” of DTV means that it is an all-or-nothing technology, interference and loss of service means not just a poor picture, but no picture at all. As CEA succinctly states, “[e]nsuring that TV broadcast reception is fully protected must be the [Commission’s] primary objective.”¹³ “Until the transition is over, there are significant risks to introducing unknown elements.”¹⁴ Knowingly introducing interference without proven means to mitigate it needlessly threatens long-standing Commission and Congressional goals to institute DTV service.

In addition to threatening DTV service, the record shows that the proposed rules, if adopted, would jeopardize rural television reception. Millions of people in rural areas live outside the Grade B contours of broadcast stations and rely on broadcast service from low power television stations and translators. The NPRM, however, fails to protect service outside the Grade B contour and would expose these viewers to harmful interference that would jeopardize their television reception. This is especially unfair because over-the-air television is the primary source of emergency information and quality of life information available to rural America, a need unfulfilled by satellite television with its limited local channel offerings.¹⁵ Nothing in the record effectively addresses these potential risks.¹⁶

The record also shows that unlicensed device operation as proposed would threaten 700 MHz spectrum and public safety communications. 700 MHz auction winners are concerned that introducing unlicensed devices in Channels 2 – 51 will delay the DTV transition, thereby postponing receipt of their auction licenses. Also, by making prime spectrum available for free, albeit on an unlicensed basis, the Commission is likely to chill investment in licensed spectrum

¹¹ See Comments of Pappas Telecasting Companies filed in ET Docket No. 04-186 on Nov. 30, 2004 at p. 7. See also Martin Statement on NOI (“I fear that these unlicensed devices will create additional interference problems when digital television gets underway. Interference already threatens to impede the introduction of digital television.”).

¹² See Comments of Harris Corporation filed in ET Docket No. 04-186 on Nov. 30, 2004 at p. 4.

¹³ See Comments of Consumer Electronics Association filed in ET Docket 04-186 on Nov. 30, 2004 at p. 2.

¹⁴ See Comments of Cox Broadcasting, Inc. filed in ET Docket No. 04-186 on Nov. 30, 2004 at p. 2 (“Cox Comments”).

¹⁵ National Translator Association Comments at p 2.

¹⁶ See Separate Statement of Commissioner Kevin J. Martin, *Additional Spectrum for Unlicensed Devices Below 900 MHz and in the 3 GHz Bands*, ET Docket No. 02-380, Notice of Inquiry, rel. Dec. 11, 2002 at p. 1 (“Martin NOI Statement”) (“I fear that such unlicensed devices could interfere with the broadcast stations many rural viewers watch and that rural viewers would lose the few broadcast signals upon which they rely.”).

and depress future auction prices for 700 MHz spectrum.¹⁷ With respect to public safety, the NPRM proposes only limited protection for public safety entities operating in channels 14-20.¹⁸ Numerous public safety interests urge the Commission to exempt these channels from unlicensed operation nationwide because the risk of interference to mission-critical operations is just too great.¹⁹

Introducing unlicensed devices only to have them interfere with existing licensed services will not serve the public interest. The Commission in the NPRM recognized that, if approved, unlicensed devices have the potential for ubiquitous and uncontrolled deployment. Once unlicensed devices are introduced to the mass market, it will be impossible to recall them and resolve any interference issues.²⁰ Given the risks described above that the proposed operations pose not only to a wide variety of licensed services, but to millions of users who rely upon those services, the Commission certainly cannot afford to act hastily as Intel urges and proceed with anything short of absolute certainty in this proceeding.

III. THE POTENTIAL HARMS OF PROCEEDING WITH THE NPRM AT THIS TIME FAR OUTWEIGH ITS PURPORTED BENEFITS

If the Commission rules on this matter now – as Intel urges – it should find that the record to date does not reveal a compelling need to make this particular spectrum available for unlicensed use, in light of the significant harm such use would cause to licensed services. The Spectrum Policy Task Force Report specifically recommended that the Commission be careful not to disturb broadcast spectrum because of the historic reliance on broadcast services by the American public and the significant operational changes required by the DTV transition: “[i]n the case of broadcasting, evolution towards greater flexibility is governed for the time being by the statutorily-mandated DTV transition process, making additional regulatory changes impractical at least until that process is complete.”²¹ Certainly the significant documented interference issues in the record do not support departing from this established policy.

It is worth noting that the Commission has already allocated a significant amount of spectrum to unlicensed use and to wireless Internet service providers (“WISPs”). The Commission’s recently released Wireless Broadband Task Force Report observes that several spectrum bands are currently used for the provision of wireless broadband services using unlicensed devices, including the 902-928 MHz band, the 2.4 GHz band, the 5 GHz band, and

¹⁷ See Comments of Qualcomm Incorporated filed in ET Docket No. 04-186 on Nov. 30, 2004 at p. 2.

¹⁸ See NPRM at ¶ 35.

¹⁹ See, e.g., Motorola Comments at pp. 5-6.

²⁰ Even more disturbing is that, with respect to DTV, harmful interference is very unlikely to be recognized as such by average consumers. If average consumers have their DTV sets go blank as a result of harmful interference, they are likely to blame new DTV technology for their reception problems.

²¹ Spectrum Policy Task Force Report, ET Docket No. 02-135, rel. Nov. 15, 2005, at pp. 45-46.

the upper-millimeter wave bands (including spectrum at 60 GHz and 90 GHz).²² Significantly, the Commission just authorized 50 MHz of spectrum at 3.65 GHz for use by WISPs and other entities for wireless broadband services. Moreover, the Commission is considering changes to its Secondary Markets rules to facilitate provision of services similar to those currently being provided on an unlicensed basis, but with the benefit of interference protection. Clearly, there is no compelling need for the Commission to give short shrift to the numerous interference issues in the record in a rush to open new spectrum for unlicensed services and WISPs.

To the extent this proceeding is motivated by a desire to make more efficient use of the TV broadcast bands, Shure reminds the Commission that Broadcast Auxiliary Services already fulfill this goal. Wireless microphones and other devices operate on a secondary basis in existing “white spaces.” Hastily squeezing too many users in the “white spaces” risks causing a “tragedy of the commons” which would render the “white spaces” unusable by all users.

In light of the above, the record shows no compelling need to rush to judgment and risk causing widespread interference to numerous existing licensed services. While many WISPs and providers of unlicensed services have a seemingly insatiable desire for additional spectrum, it would be unwise to threaten not only the broader Commission and Congressional public policy goals promoting DTV but also the rights of existing spectrum users by adopting the currently proposed rules.

IV. CONCLUSION

The record reveals that this proposal raises many complex technical issues currently under active study and debate in industry groups. Many important questions remain unanswered. As such, there is much work that the affected industries should be allowed time to accomplish. The only clear-cut conclusion to be drawn at this time is that the Commission is not in a position to permit unlicensed devices in the TV bands without risking harmful interference to multiple uses of this spectrum affecting millions of people. The risk of such widespread harmful interference simply cannot be justified.

The Commission should reject Intel’s unsupported rosy view of the interference issues and its unreasonable demand that the FCC “move forward without delay” to amend its rules in a way that has been shown by many to cause harmful interference to important existing uses of the band. It is premature for the Commission to move forward. With the “error risk so high and the error cost so great,”²³ the Commission should defer consideration of rules allowing unlicensed devices to share spectrum with TV broadcast bands until there is greater certainty that any harmful interference can be effectively mitigated.²⁴ Time is needed to resolve important

²² Wireless Broadband Task Force Report, GN Docket No. 04-163, rel. Mar. 8, 2005, at p. 14.

²³ Cox Comments at p. 2.

²⁴ Indeed, then-Commissioner Martin’s observations in 2002 still hold true today: “In balance, the speculative benefits of opening the broadcast band up, the risk to the digital transition, the potential harm to rural areas, ... weigh against conducting this inquiry at this time.” Martin NOI Statement at p. 2.

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contentious issues, and to develop and test real-world solutions to ensure that existing spectrum users and the American public are not harmed.

If you have any questions regarding these matters, please do not hesitate to contact the undersigned.

Very truly yours,

/s/

Catherine Wang
Jeanne W. Stockman